



385-201

A

08/822397

DIVISION-CONTINUATION PROGRAM APPLICATION TRANSMITTAL FORM

Docket Number	Anticipated classification of this application		Prior Application	
	Class	Subclass	Examiner	Art Unit
VID-00203/29	358		N. Flynn	2602

To the Commissioner of Patents and Trademarks:

This is a request for filing a continuation divisional application under 37 CFR 1.60, of pending prior application Serial No. 08/488,691, filed on June 8, 1995, of Barry H. Schwab and John G. Posa for VIDEO INPUT SWITCHING AND SIGNAL PROCESSING APPARATUS.

1. Enclosed is a copy of the latest inventor signed prior application, including the oath or declaration as originally filed. I hereby verify that the attached papers are a true copy of the latest inventor signed prior application Serial No. 08/488,691 as originally filed on June 8, 1995, and further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such wilful false statements may jeopardize the validity of the application or any patent issuing thereon.

2. The filing fee is calculated below:

For	Number Filed	Number Extra	Rate	Fee
Total Claims	17 - 20 =	0		-0-
Independent Claims	1 - 3 =	0		-0-
Multiple dependent claim(s), if any				-0-
		Basic Fee		\$385
		Total Filing Fee		\$385

3. The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 07-1180. A duplicate copy of this sheet is enclosed.

4. A check in the amount of \$385.00 is enclosed.

5. Cancel in this application original claims _____ of the prior application before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)

6. Amend the specification by inserting before the first line the sentence: "This application is a continuation, division, of application Serial No. 08/488,691, filed June 8, 1995.

7. Transfer the drawings from the pending prior application to this application and abandon said prior application as of the filing date accorded this application. A duplicate copy of this sheet is enclosed for filing in prior application file. (May only be used if signed by person authorized by §1.138 and before payment of base issue fee.)

a. New formal drawings are enclosed.

b. Priority of application Serial No. _____ filed on _____ in _____ is claimed under 35 U.S.C. 119.

(country)

The certified copy has been filed in prior application Serial No. _____, filed _____.

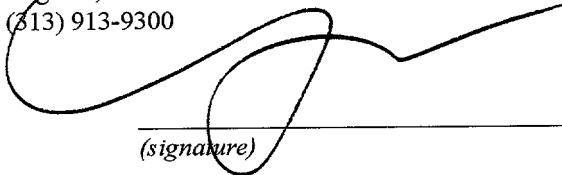
8. The prior application is assigned of record to _____.
9. A preliminary amendment is enclosed.
10. Also enclosed is a copy of the Verified Statement.
11. The power of attorney in the prior application is to:

John G. Posa
GIFFORD, KRASS, GROH, PATMORE,
ANDERSON & CITKOWSKI, P.C.
280 N. Woodward Ave., Suite 400
Birmingham, MI 48009

- a. The power appears in the original papers in the prior application.
- b. Since the power does not appear in the original papers, a copy of the power in the prior application is enclosed.
- c. Address all future communications to:

John G. Posa
GIFFORD, KRASS, GROH, PATMORE,
ANDERSON & CITKOWSKI, P.C.
280 N. Woodward Ave., Suite 400
Birmingham, MI 48009
(313) 913-9300

3/20/97
(date)


(signature)

Signature is:

- inventor(s)
- assignee of complete interest
- attorney or agent of record
- filed under §1.34(a)

Express Mail #EH262327238US



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In continuation of:

SCHWAB et al

Serial No.: 08/488,691

Group No.: 2602

Filed: June 8, 1995

Examiner: N. Flynn

For: VIDEO INPUT SWITCHING AND SIGNAL PROCESSING APPARATUS

Continuation application:

SCHWAB et al

Attorney Docket: VID-00203/29

For: VIDEO INPUT SWITCHING AND SIGNAL PROCESSING APPARATUS

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Prior to examination, please amend the above-referenced application as follows:

IN THE CLAIMS

1. (Amended) A system for integrating a plurality of television signal sources into a cohesive viewing environment, the system comprising:

a [standard broadcast-frequency] first television input and an associated multi-channel tuner operative to selectively tune a [broadcast] first television program;

a [cable] second television input and an associated multi-channel tuner operative to selectively tune a [cable] second television program;

an output to deliver a video program to display device;

a user command input device;

means for storing information representative of channel designations; and

a system controller operative to perform the following functions in response to a user command[s] :

assign and re-assign user-defined channels designations to channels present on the first and second television [any of the associated] inputs, and store the designations for future use, and

selectively route a television program from [any of] the first and second television [associated] inputs to the output for viewing on the display device, the switching of a particular input being a function of the user-defined channel designations.

2. (Amended) The system of claim 1, at least one of the [cable tuner] television inputs further including a descrambler module for premium services.

3. The system of claim 1, wherein at least one of the television inputs is a cable television input. [further including:

a direct-broadcast-satellite (DBS) television input and an associated multi-channel tuner operative to selectively tune a DBS program, the controller being further operative to assign and store user-defined DBS channels designations and selectively route the DBS program to the output for viewing on

the display device in accordance with the channel designations.]

Claim 9, line 3, before "higher" insert ---a---.

10. (Amended) The system of claim 9, including supplemental information associated with [one eye of the viewer to facilitate] stereoscopic viewing.

Remarks

Questions regarding this application may be directed to the undersigned Attorney using the telephone or facsimile numbers provided.

Respectfully submitted,

By: _____

John G. Posa
Reg. No. 37,424
Gifford, Krass, Groh, Sprinkle,
Patmore, Anderson & Citkowski
280 N. Woodward Ave., Suite 400
Birmingham, MI 48009
(313) 913-9300
FAX (313) 913-6007

Date: March 20, 1997

08/822397



VIDEO INPUT SWITCHING AND SIGNAL PROCESSING APPARATUS

Field of the Invention

This invention generally relates to video equipment, and more particularly, to a converter arrangement operative to configure a plurality of input 5 sources into an integrated operating environment.

Background of the Invention

Television viewers are often faced with complicated wiring requirements for integrating the various signal sources into their systems. This situation was made 10 worse in part by the Federal Cable Regulation Act of 1992, which caused some cable systems to discontinue carriage of local Broadcast stations that insist on receiving a per-subscriber fee to allow retransmission of their signals. As a result, cable subscribers on these systems must 15 provide their own antennas in order to receive signals from these broadcast stations.

With the availability of signals from direct-broadcast satellites, many consumers will consequently have three different signal sources to choose from when viewing, 20 with the added confusion that all three of these sources may provide channels with the same numerical designation. A further complication is the integration of cable converters with the public switched telephone network, for billing special event programming and various other pay- 25 per-view schemes.

Summary of the Invention

The invention comprises an apparatus for integration of a plurality of television signal sources into a single system. Internal provisions include a 5 standard broadcast-frequency tuner as well as a cable tuner. The cable tuner may optionally include provisions for a descrambler module for premium or pay-per-view services, which may be implemented either as an internal circuit board, an internal plug-in module, or an external 10 plug-in unit. A third input is provided as a direct-broadcast-satellite tuner, which itself may be implemented as an internal circuit board or as an internal or external plug-in unit. As is the case for the cable tuner, provisions are included for a separate descrambler unit 15 implemented as an internal circuit board or as an internal or external plug-in unit. As a further option, additional inputs may be provided for other uses, such as VCR playback signals. Outputs are provided both for baseband audio and video, and also through an RF modulator.

20 A system controller, which accepts control signals from a standard infrared-type hand-held remote-controller, handles such tasks as input selection and channel switching, and allows the user to reassign channel designations at will, even including input switching as 25 part of the channel selection. The controller also integrates signals for an optional telephone interface, for pay-per-view billing or other uses. When required, the controller is further capable of enabling descrambling circuitry as appropriate for each signal source. In like 30 manner, specialized modules (as, for example, MPEG decoders

and the like) may be enabled or have their operating parameters configured so as to process digitally encoded signals. In a preferred embodiment, the unit may be provided with additional tuner provisions associated with 5 any of the various inputs, for receiving signals in which a primary signal is on one channel, and a secondary signal is on a different channel, as, for example, in the case of a stereoscopic broadcast system in which one channel carried the "left eye" signal, and a second channel carried 10 the "right-eye" signal.

Brief Description of the Drawings

FIGURE 1 is a block diagram which illustrates the main features of the invention; and

FIGURE 2 is a block diagram which shows signal 15 separation and recombination means associated with providing supplemental program information.

Detailed Description of the Preferred Embodiment

The invention is explained by way of reference to Figure 1, which shows the main features of a system having 20 input switching provisions. Broadcast-frequency signals 2 from a standard antenna are received at the broadcast tuner 4. These signals are demodulated into baseband audio and video signals, which then are provided to the audio/video switching matrix 22. Cable system signals 6 are provided 25 to the cable tuner 8, which as an option may include a descrambler module 10; this may be implemented either as an internal circuit board, an internal plug-in module, or an external plug-in unit, and this unit would be compatible

with the scrambling system used on the particular cable system. Depending upon the circumstances, one or more of the various tuners may interface to a decoder to receive other specialized information such as teletext or closed-
5 captioning, though not referenced in the figures.

Optional satellite-receiver signals 12 are provided to the satellite tuner 14, which, like the cable tuner, also may include an optional descrambler unit 16, implemented through a similar range of methods as described
10 above for the cable tuner. In some installations, the satellite receiver service would include its own tuner and/or descrambler means, in which case the signals would be input to the cable converter through one of several direct-connection inputs (not shown); these inputs would
15 also allow for the integration of other sources, such as VCR playback signals. All of these input sources are demodulated and provided to the audio/video switching matrix as baseband audio and video signals, enabling signal routing within the audio/video switching matrix to be
20 implemented as a baseband video "bus." The selected signal from the switching matrix is provided at the output 24; these signals are also optionally provided to an RF modulator 26, for output as modulated signals 28.

In the preferred embodiment, the system provides
25 for the association of one channel with one or more other channels carrying supplemental information. For example, one channel might carry the "left-eye" view of a stereoscopic signal, while a second channel carried the "right-eye" view. Such additional channels may
30 alternatively provide the following types of supplemental

information, though the entire range of available information is by no means limited to this list:

- picture enhancement information (as suggested by several of the proposed HDTV systems) to provide wide-screen or other effects;
- video-game related information, including information related to additional players;
- digital data, such as statistical information about players in a sporting event or pricing/account information associated with a shopping channel;
- additional audio information, including information which provides higher fidelity, stereophonic/surround-sound effects, foreign language audio, "sing-along" lyrics to accompany a popular music concert, etc.
- teletext or closed-captioning information.

In this embodiment of the invention, a primary channel will typically carry "primary" program information along with additional information used by the system for directing a second tuner to a secondary channel; other channels could be similarly associated. The information relating a primary channel to one or more secondary channels carrying supplemental information may be derived in various ways. For example, the primary channel may carry a pointer to the additional channel(s), for example, in a subcarrier, or as part of synchronization as during vertical retrace. Such a pointer may be carried more or less continuously by the primary channel, or may be

broadcast more infrequently, for example, at the start of a program. As an aid in the scrambling and/or encryption of a program, information relating the programs may be downloaded and locally stored on an authorized basis. As 5 a further measure, a "channel-hopping" scheme may be used, wherein different related channels are used at different times, with only authorized viewers being provided with the overall plan.

As an alternative to the broadcasting of 10 information relating channels, codes may be published in a format similar to the currently available VCR Plus system now in use for VCR programming. That is, in addition to a code which contains start/stop times and a single channel number, the same or a different code may also contain 15 multiple channels designations, certain of which provide the supplementary information. As in the current implementation of VCR Plus, such code may be entered in the system's hand-held remote control for reception by the receiver 30 depicted in Figure 1. Other means for 20 receiving and storing these codes are also possible, including downloading from a personal computer, and so forth. Regardless of the technique used to derive the additional programming information, on-screen programming techniques may be used to enable a user to program in the 25 information so as to label it, for example, to designate a particular channel of the decoder to identify the station call letters or to provide more descriptive information.

As shown in Figure 2, these features may be implemented with a signal separator 52, feeding primary and 30 secondary signals to individual tuners 54A and 54B

interfaced to an optional descrambler 10. A signal recombiner 56 is preferably used prior to the audio/video switching matrix 24, providing a combined signal output at 24. It will be appreciated by those of skill in the art of 5 audio/video mixing and control that other circuit implementations may be used to carry out the broad goal of the invention to integrate multiple inputs to provide a cohesive enjoyment environment. For example, if desired, provisions may be included for an additional internal or 10 external plug-in module (not shown), with associated outputs, to provide modified signals for these special purposes. In addition, the system may be adapted to provide multiple outputs enabling a user to record the separate programs associated with all participating 15 channels for subsequent playback. Such playback may occur, for example, through the system comprising the invention, through separate inputs and using single recombiner 56 shown in Figure 2 where advantageous.

The operation of the entire unit is controlled by 20 a system controller 32. This controller may receive input signals from an infrared remote-control receiver 30, or from any of a variety of user input devices, such as keyboards or computer interfaces (not shown). In addition, it is capable of communicating with the public switched 25 telephone network, through an optional telephone interface (not shown), enabling the cable converter unit to interface with systems which provide pay-per-view services or other specialized billing and program-ordering schemes.

Another feature of the invention is the ability 30 to manipulate channel assignments by way of the system

controller. For example, the user may choose to assign cable converter channels 1, 2, and 3 to broadcast channels 2, 4, and 7; the user might choose to assign cable converter channel 4 to cable system channel 40, and cable 5 converter channel 5 to direct-broadcast satellite channel 15. In this way, the user is able to select any channel line-up desired, including the channels selected from all sources available in any order, and with any channel numerical designation. Although not shown, it is to be 10 understood that system controller 32 interfaces to an appropriate memory device for storing these channel assignments, including the user-defined designations.

In an alternative embodiment, optional MPEG decoders or other digital signal processors (not shown) may 15 be enabled and/or have their operating parameters configured under control of the system controller, using a similar modular approach to that described herein above with reference to descrambler modules.

What is claimed is:

1. A system for integrating a plurality of television signal sources into a cohesive viewing environment, the system comprising:

5 a standard broadcast-frequency television input and an associated multi-channel tuner operative to selectively tune a broadcast television program;

a cable television input and an associated multi-channel tuner operative to selectively tune a cable television program;

10 an output to deliver a video program to display device;

a user command input device;

means for storing information representative of channel designations; and

15 a system controller operative to perform the following functions in response to a user commands:

assign and re-assign user-defined channels designations to channels present on any of the associated inputs, and store the designations for future use, and

20 selectively route a television program from any of the associated inputs to the output for viewing on the display device, the switching of a particular input being a function of the user-defined channel designations.

25 2. The system of claim 1, the cable tuner further including a descrambler module for premium services.

3. The system of claim 1, further including:
a direct-broadcast-satellite (DBS) television

input and an associated multi-channel tuner operative to selectively tune a DBS program, the controller being further operative to assign and store user-defined DBS channels designations and selectively route the DBS program 5 to the output for viewing on the display device in accordance with the channel designations.

4. The system of claim 1, further including a telephone interface to facilitate an automatic account transaction associated with a pay-per-view program.

10 5. The system of claim 1, further including: an input to receive a previously locally stored video program, the controller being further operative to selectively route the program to the output for viewing on the display device.

15 6. The system of claim 1, the output including separate baseband audio and video outputs.

7. The system of claim 1, further including an input to receive a digital program in data compressed form and means for selectively digitally decompressing the 20 program prior to delivery to the display device.

8. The system of claim 1, wherein one or more additional channels carry supplemental program information, the system being further capable of automatically determining at least one of the additional channels and 25 tuning that channel so as to output the program along with

the supplemental information.

9. The system of claim 8, the additional channel carrying supplemental information to facilitate higher-resolution viewing of the program.

5 10. The system of claim 9, including supplemental information associated with one eye of the viewer to facilitate stereoscopic viewing.

11. The system of claim 8, the additional channel carrying supplemental audio information.

10 12. The system of claim 8, wherein the system is capable of automatically determining at least one of the additional channels by extracting a supplemental channel information from a program channel.

15 13. The system of claim 12, wherein the supplemental channel information is carried by the program channel on a repetitive basis in a non-viewable portion of program signal.

20 14. The system of claim 12, wherein the supplemental channel information is carried by the program channel only at the start of a particular program.

15. The system of claim 12, wherein the supplemental channel information changes during the receipt

of a particular program to which supplemental information may be associated.

16. The system of claim 8, wherein the system is capable of automatically determining at least one of the 5 additional channels by receiving a code containing additional channel information.

17. The system of claim 8, further including a plurality of outputs associated with a program and supplemental information, enabling a user to record a 10 program received from a program channel and one or more additional channels.

SBC-01402/03
50806sh



Abstract of the Disclosure

An apparatus integrates a plurality of television signal sources into a cohesive audio/video environment. Internal provisions include a standard broadcast-frequency tuner, cable tuner as well as other optional inputs such as for a direct-broadcast satellite, previously recorded video material, etc. In the preferred embodiment, means are provided whereby a main or primary program channel may be linked to additional channels providing supplementary information to enhance resolution, sound quality, or to facilitate special effects.

08/822397

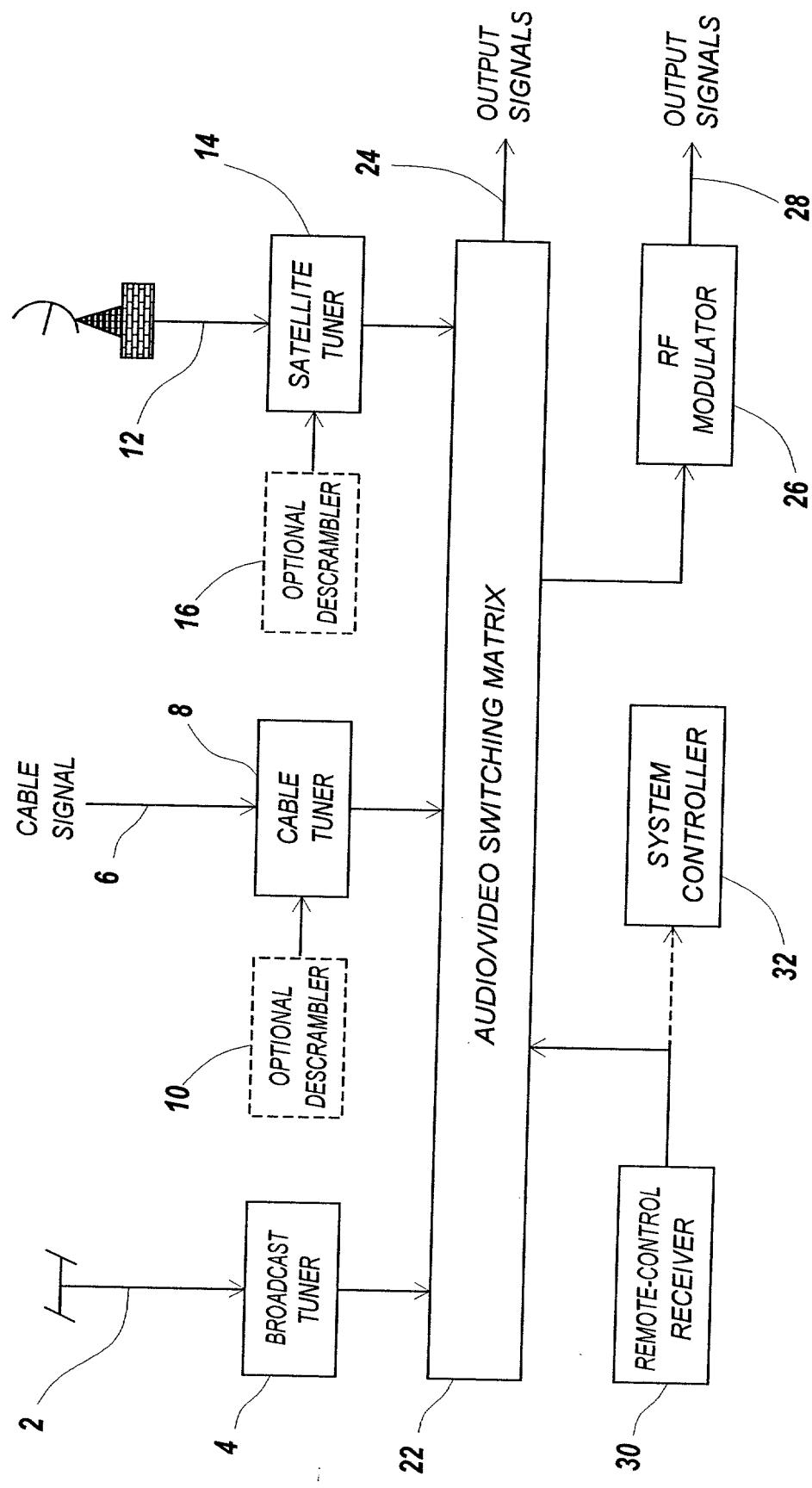


Figure 1

0848223527

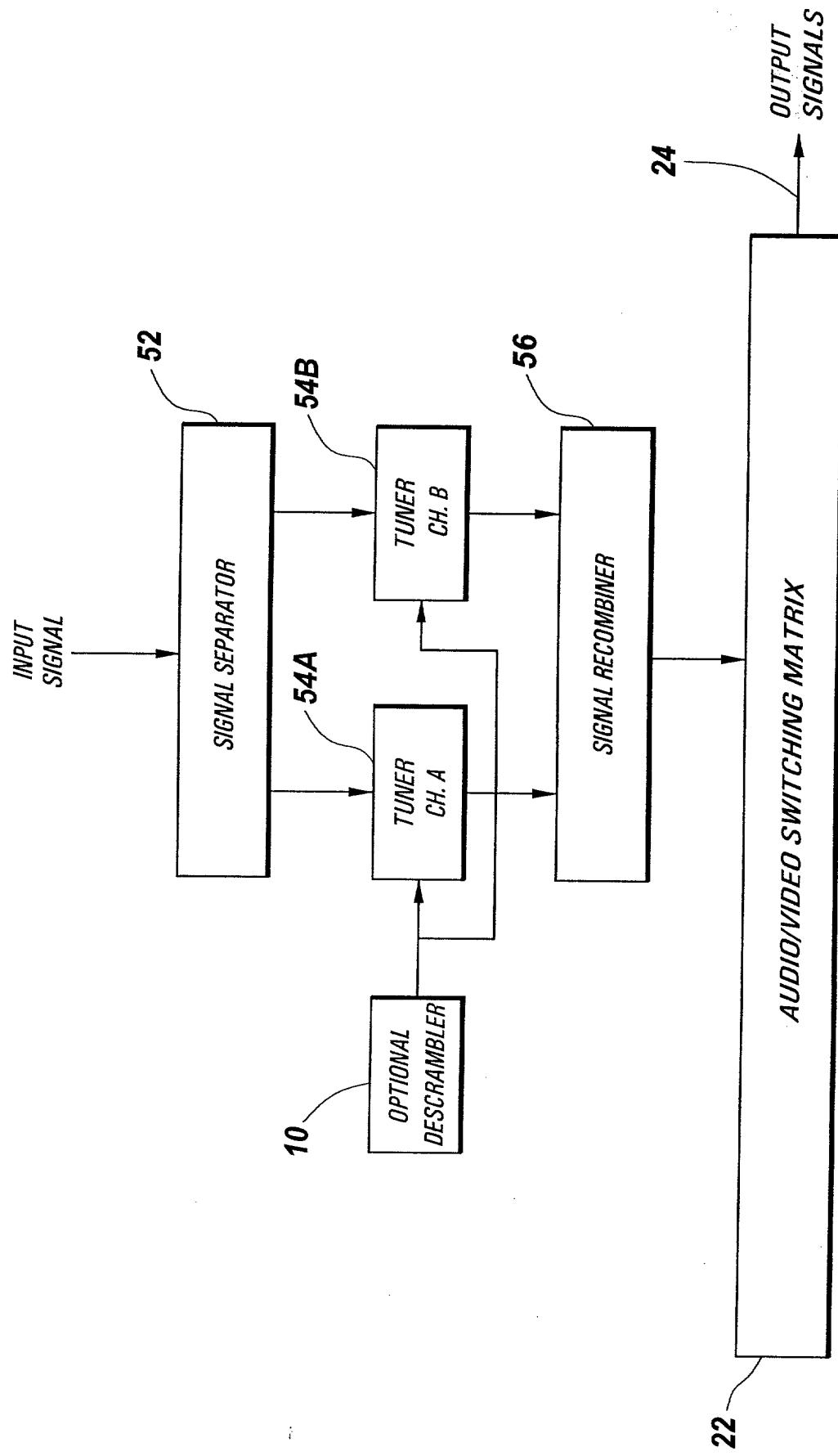


Figure 2



Attorney's Docket No.: SBC-014/03

Applicant or Patentee: Schwab et al

Serial or Patent No.:

Filed or Issued:

For: VIDEO INPUT SWITCHING AND SIGNAL PROCESSING APPARATUS

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) and 1.27(b)) - INDEPENDENT INVENTOR

As the below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled VIDEO INPUT SWITCHING AND SIGNAL PROCESSING APPARATUS described in

the specification filed herewith.
 application serial no. _____, filed _____
 patent no. _____, issued _____

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a non-profit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

no such persons, concern, or organization
 persons, concerns or organizations listed below*

**NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention availing to their status as small entities. (37 CFR 1.27)*

FULL NAME _____
ADDRESS _____

Individual Small Business Concern Non-Profit Organization

FULL NAME _____
ADDRESS _____

Individual Small Business Concern Non-Profit Organization

FULL NAME _____
ADDRESS _____

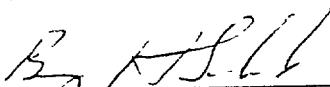
Individual Small Business Concern Non-Profit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Barry H. Schwab

Name of Inventor

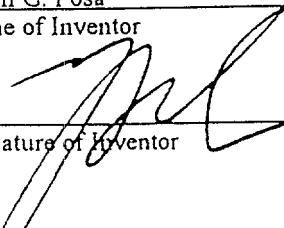


Signature of Inventor

Date 6/7/95

John G. Posa

Name of Inventor



Signature of Inventor

Name of Inventor

Date 6/7/95

Name of Inventor

Date 6/7/95

Signature of Inventor

COMBINED DECLARATION AND POWER OF ATTORNEY

(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL,
CONTINUATION OR CIP)

As the below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is the following type:

- original
- design
- supplemental

NOTE. If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part do not check next item; check appropriate one of last three items.

- national stage of PCT

NOTE: If one of the following 3 items apply then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION OR CIP.

- divisional
- continuation
- continuation-in-part (CIP)

INVENTORSHIP IDENTIFICATION

WARNING: If the inventors are each not the inventors of all the claims an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.

My resident, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

VIDEO INPUT SWITCHING AND SIGNAL PROCESSING APPARATUS

SPECIFICATION IDENTIFICATION

the specification of which: (complete (a), (b) or (c))

(a) is attached hereto.

(b) was filed on _____ as Serial No. 0 / _____ or Express Mail No. as Serial No. not yet known _____ and was amended on _____ (if applicable).

NOTE: Amendments filed after the original papers are deposited with the PTO which contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 CFR 1.67.

(c) was described and claimed in PCT International Application No. _____ filed on _____ and as amended under PCT Article 19 on _____ (if any).

ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge to the duty to disclose information

which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56

(also check the following items, if desired)

and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent, and

In compliance with this duty there is attached an information disclosure statement in accordance with 37 CFR 1.98

PRIORITY CLAIM (35 U.S.C. § 119)

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

(d) no such applications have been filed.

(e) such applications have been filed as follows.

NOTE: Where item (e) is entered above and the International Application which designated the U.S. itself claimed priority check Item (e), enter the details below and make the priority claim

A. PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS APPLICATION AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119

Country (or indicate if PCT)	Application Number	Date of Filing (day, month, year)	Priority Claimed Under 37 USC 119
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No

ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION

NOTE: If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR CIP APPLICATION for benefit of the prior U.S. or PCT applications) under 35 U.S.C. § 120.

POWER OF ATTORNEY

I hereby appoint the following attorneys and/or agents to prosecute this application and transact all business in the Patent and Trademark Office connected therewith

Ernest I. Gifford (Reg. No. 20,644)
Allen M. Krass (Reg. No. 18,277)
Irvin L. Groh (Reg. No. 17,505)
Douglas W. Sprinkle (Reg. No. 27,394)
Alfred L. Patmore, Jr. (Reg. No. 19,145)
Douglas J. McEvoy (Reg. No. 34,385)

Thomas E. Anderson (Reg. No. 31,318)
Ronald W. Citkowski (Reg. No. 34,732)
Judith M. Riley (Reg. No. 30,311)
Theresa A. Orr (Reg. No. 34,890)
Ellen Cogen Lipton (Reg. No. 38,109)
John G. Posa (Reg. No. 37,424)

SEND CORRESPONDENCE TO:

John G. Posa
GIFFORD, KRASS, GROH, SPRINKLE,
PATMORE, ANDERSON & CITKOWSKI, P.C.
280 N. Woodward Ave.
Suite 400
Birmingham, MI 48009

DIRECT TELEPHONE CALLS TO:

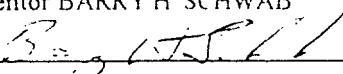
John G. Posa
(313) 913-9300

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

SIGNATURE(S)

Full name of sole or first inventor BARRY H SCHWAB

Inventor's signature 

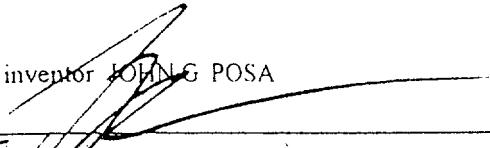
Date 6/7/95 Country of Citizenship US

Residence West Bloomfield, Michigan

Post Office Address 5298 Cedarhurst Drive

West Bloomfield, Michigan 48322

Full name of second joint inventor JOHN G POSA

Inventor's signature 

Date 6/7/95 Country of Citizenship US

Residence Ann Arbor, Michigan

Post Office Address 1204 Harbrook Avenue

Ann Arbor, Michigan 48103

*CHECK PROPER BOX(ES) FOR ANY OF THE FOLLOWING ADDED PAGE(S)
WHICH FORM A PART OF THIS DECLARATION*

Signature for third and subsequent joint inventors. *Number of pages added* _____
* * *

Signature by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor.
Number of pages added _____
* * *

Signature for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1.47.
Number of pages added _____
* * *

Added pages to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (CIP) application. *Number of pages added* _____
* * *

Authorization of attorney(s) to accept and follow instructions from representative.
* * *

If no further pages form a part of this Declaration then end this Declaration with this page and check the following item

This declaration ends with this page.